

Exhibit A

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14 UNITED STATES DISTRICT COURT
15 NORTHERN DISTRICT OF CALIFORNIA
16 OAKLAND DIVISION

17
18 In re Google RTB Consumer Privacy
Litigation,

19
20 This Document Relates to: *all actions*

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DECLARATION OF [REDACTED] IN
SUPPORT OF GOOGLE'S OPPOSITION TO
PLAINTIFFS' MOTION FOR CLASS
CERTIFICATION AND APPOINTMENT OF
CLASS REPRESENTATIVES AND CLASS
COUNSEL

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I, [REDACTED], declare as follows:

2 1. I am the Engineering Director and a Lead of the Google Ad Manager team at Google
3 LLC (“Google”). In that capacity, I have extensive familiarity with the real-time bidding process
4 that Google implements in connection with certain advertising products (“RTB”) and oversee a
5 team that is responsible for many aspects of RTB. In this declaration, I explain (a) generally how
6 the RTB process operates as implemented by Google, (b) the information transmitted in the process,
7 (c) the multiple factors that affect whether, and in what form, certain information is included or
8 omitted in the RTB process. I also briefly address some factual errors made in Dr. Zubair Shafiq’s
9 expert report submitted in this case. Except where otherwise indicated, I make this declaration
10 based on my own personal knowledge and could competently testify thereto.

11 2. I am informed that Plaintiffs are asking the Court to certify a class consisting of all
12 "individual Google account holders subject to a Google United States Terms of Service whose
13 personal information was sold or shared by Google in its Real Time Bidding auctions after June
14 28, 2016." ECF No. 546 at 17.

Online Advertising Overview

16 3. Owners of websites or mobile applications (collectively “publishers”) can sell space
17 on their websites and applications for displaying ads (“ad inventory”¹). Publishers can sell ad
18 inventory through their own ad servers or work through various intermediaries, generally known
19 as sell-side platforms (“SSPs”). Online advertising in general, and ads enabled by RTB in
20 particular, are an essential way for publishers to earn a living, enabling them to provide content and
21 services to their users, often for free.

22 4. Google Ad Manager is one of Google's SSPs that allows publishers to sell and
23 manage their ad inventory. To use Ad Manager, a publisher must create an account and accept the
24 relevant Ad Manager terms.² Google's other SSPs are AdSense and AdMob, which also enable

²⁶ ²⁷ ¹ A general description of ad inventory in the context of online advertising is described at this Help article: <https://support.google.com/admanager/answer/10064557>.

²⁷ Help article: <https://support.google.com/admanager/answer/1000433>.
²⁸ ² An example of the Ad Manager Policy, previously produced in this litigation as GOOG-HEWT-00133767, is attached to this Declaration as Exhibit 1.

publishers to sell ad inventory but are optimized for different groups of publishers.³

5. Advertisers can buy ad inventory on publishers' websites and applications through various intermediaries, including ad networks, ad agencies, and demand side platforms ("DSPs").

6. RTB generally refers to a process by which publishers can make their ad inventory available for sale through a real-time exchange of information and an automated bidding process with potential buyers. Some publishers implement RTB themselves to solicit bids directly for their ad inventory; others work through various intermediaries to enable RTB. The Interactive Advertising Bureau (“IAB”) has established an industry standard protocol for the form and content of information transmitted in RTB, known as the “OpenRTB” protocol, which has been in place since approximately 2012.⁴

7. Google offers two products known as Authorized Buyers (“AB”) and Open Bidding (“OB”) that enable buyers to purchase ad inventory through RTB. Before participants in Authorized Buyers and Open Bidding can bid on ad inventory, they must go through a Google vetting process and agree to Google’s terms and incorporated policies, which restrict the use and storage of information they receive in the RTB process.⁵ Google regularly audits AB and OB participants for compliance with these terms and can take various actions if violations are found, including terminating their access to RTB.

The Data Flow In RTB

8. **Ad Requests:** Publishers who sell ad inventory through Google SSPs like Ad Manager must install Google-provided software tools on their webpages and apps. Generally speaking, when a user accesses the publisher's website or app, this software enables the publisher to trigger the user's browser or device to send a request to Google for an ad (an "ad request"). The ad request sent to Google can include various information including: (1) Google's advertising

³ Broadly speaking, Ad Manager is for large publishers who need more sophisticated functionality; AdSense is optimized for publishers who prefer more automation; and AdMob is focused on ad inventory on mobile apps.

⁴ See <https://www.iab.com/wp-content/uploads/2016/03/OpenRTB-API-Specification-Version-2-5-FINAL.pdf> (last accessed September 26, 2023) (“Due to very widespread adoption by the industry, OpenRTB was adopted as an IAB standard in January 2012 with the release of version 2.1.”).

⁵ An example of the Authorized Buyers Terms, previously produced in this as GOOG-HEWT-00001088 is attached here to as Exhibit 2.

1 cookies previously set on its domains; (2) the URL of the website making the ad request; (3) the IP
 2 address assigned to the device on which the browser is running; and (4) the device's user agent
 3 information⁶. Some of the information in an ad request is information that is part of standard
 4 Internet communication protocols, independent of any advertising function, including IP address
 5 and user agent.

6 9. **Bid Requests:** After Google receives the publisher's ad request, it sends bid requests
 7 ("bid requests") to certain AB and OB participants (collectively "RTB participants") that the
 8 publisher has opted to make eligible to bid on the publisher's ad inventory. The fields of data that
 9 can potentially be included in a bid request are detailed in Google's public documentation⁷ and
 10 generally include information about (1) the ad inventory being made available for bidding (e.g.,
 11 where it appears on the page, what ads are eligible to be shown), (2) the publisher's web page or
 12 app (e.g., the URL of the web page or the id of a mobile application), (3) the user's browser or
 13 device (e.g., the IP address and user agent), (4) certain pseudonymous identifiers, if applicable (e.g.,
 14 certain browser cookies or mobile device identifiers), and (5) general location information (which
 15 is generally derived from the IP address, as further explained below). The information in a bid
 16 request is either taken directly from the ad request that Google receives, is derived from that
 17 information, or is generated from the publisher's account information.

18 10. Bid requests to RTB participants never contain information taken from the Google
 19 Account of a person viewing the web page. Bid requests may or may not relate to a browser or
 20 device used by a Google account holder; where they do, the bid request will not contain the
 21 identifier for the person's Google account (known as a GAIA) nor any information taken from the
 22 person's Google account. Therefore, the information that may be included in a bid request is the
 23 same set of non-Google account derived information regardless of whether a user has a Google
 24 Account or not.

25 11. While Google's RTB protocols are compatible with the OpenRTB standard, Google

26 ⁶ A user agent is information that identifies the user's browser and type of device.

27 ⁷ Google's protocol for Authorized BuyersAB is currently available at
 https://developers.google.com/authorized-buyers/rtb/realtime-bidding-guide; Google's
 28 implementation of the OpenRTB protocol is available at
 https://developers.google.com/authorized-buyers/rtb/openrtb-guide.

1 implements additional privacy-preserving steps that are not part of the standard OpenRTB protocol.
 2 As a result, Google generally sends less information overall in its bid requests as compared to what
 3 is contemplated in OpenRTB, as described further below.

4 12. [REDACTED]

5 [REDACTED]

6 [REDACTED]

7 [REDACTED]

8 [REDACTED]

9 [REDACTED]

10 [REDACTED].

11 13. **Bid Responses:** Eligible RTB participants can then evaluate the bid request based
 12 on their own criteria and respond with a “bid response” that contains their bid amount, proposed
 13 ad, and other information. The winning bid is then selected in an auction process and the
 14 corresponding ad is served to the user’s device.

15 **Cookies & Cookie-Matching**

16 14. In general, cookies are small data files stored on a web browser that can serve
 17 different functions. For example, a publisher’s website may store a cookie on a user’s web browser
 18 to help the publisher remember information about the user’s visits to their websites, for purposes
 19 of customizing a user’s experience on their sites.

20 15. Google uses a cookie known as a Biscotti to pseudonymously identify a web
 21 browser on a given device, for advertising purposes. Biscotti cookies are not associated with a
 22 Google account, and someone who uses a browser with an assigned Biscotti may or may not be a
 23 Google account holder. Where the user of a browser with a Biscotti is a Google account holder,
 24 Google maintains various internal systems, controls, and policies to prevent the Biscotti from being
 25 linked to the individual’s Google account.

26 16. RTB participants may utilize their own cookies, in the same way Google uses a
 27 Biscotti. “Cookie matching” allows RTB participants to match their cookies with Google’s Biscotti
 28 for the same browser. This process allows an RTB participant, for example, to limit the bid requests

they receive to those involving users that they previously interacted with, as determined by the presence of their cookies.

3 17. Whether cooking matching successfully occurs during any given browsing session
4 depends on many individualized factors. For example, when a user deletes cookies in their browser,
5 (1) any Biscotti cookie associated with the browser is deleted, and (2) an RTB participant can no
6 longer match its cookies with the deleted Biscotti. In addition, RTB participants may opt not to use
7 cookie matching at all and users can also disable cookie matching by opting out of ads
8 personalization (discussed further below).

Specific Data Fields in RTB Bid Requests

10 18. I understand that Plaintiffs' motion for class certification addresses certain specific
11 data fields that can be sent in bid requests, including the google_user_id, hosted_match_data,
12 IP_address, user_agent, device identifiers, geolocation fields, detected_verticals, and user_list
13 fields. I address some aspects of these data fields below.

The google_user_id field

19. The google_user_id is derived from the Biscotti cookie described above. When a
16 browser associated with a Biscotti sends an ad request to Google, the corresponding bid requests
17 will have an encrypted google_user_id that is unique for each RTB participant that receives a bid
18 request. This limits the ability of bidders to share common ids between one another or with anyone
19 else.

20. The google_user_id is not linked to a Google user's account, and Google maintains
21 various internal systems, controls, and policies to prevent the google_user_id from being tied back
22 to a Google user's account.

23 21. The `google_user_id` is often omitted from bid requests depending on numerous
24 individualized factors, as discussed further below.

25 22. The sample of named-Plaintiffs' data that was produced in this case comes from a
26 source known as the [REDACTED] ("[REDACTED]") log that approximates but does not exactly match the
27 data sent in bid requests. The [REDACTED] log contains a google_user_id_present field, which is a field
28 that indicates whether a Biscotti value was included in the ad request sent to Google; it does not

1 indicate whether the google_user_id was included in a bid request sent to RTB participants.

2 **The hosted_match_data field**

3 23. The hosted_match_data field relates to the cookie matching process described
4 above. Where there is a cookie match, information about the match is included in the
5 hosted_match_data field in a bid request.

6 24. The hosted_match_data field is often omitted from RTB bid requests depending on
7 individualized factors, including the factors described above in which cookie matching does not
8 occur as well as the factors in which google_user_id is omitted, as discussed below.

9 **IP addresses and the ip_address field**

10 25. An IP address is a number assigned by an internet service provider to a device that
11 connects to the Internet. Multiple devices may share the same IP address (e.g., all the devices in a
12 home that are using a shared internet connection). IP addresses are included in all HTTP requests
13 to access content or services on a webpage, meaning publishers receive the IP address of a user's
14 device in the normal course of receiving and responding to requests for website content,
15 independently of any advertising-related purpose.

16 26. IP addresses are included in ad requests that Google receives, as noted above.
17 Google then truncates the IP address value before including it in the corresponding bid requests
18 sent to RTB participants. Specifically, bid requests only include the first three bytes for an IPv4
19 address or the first six bytes for an Ipv6 address. As a result, RTB participants do not receive the
20 full IP address associated with a given device in the bid requests they receive from Google.⁸ This
21 is a privacy-enhancing feature Google has implemented that goes beyond the industry standard
22 process contemplated in OpenRTB.

23 27. In addition, Google also omits the IP address entirely from bid requests in some
24 circumstances, as described below.

25 **User Agent**

26 28. User agent is an information string Google receives in ad requests which typically

27 28 ⁸ The full IP address can be sent in a bid request in the limited circumstance where a publisher
requests that it be sent to a specific RTB participant for purposes of showing ads on connected TV
devices.

1 identifies a device's browser and operating system types and versions. Similar to an IP address,
 2 publishers receive user agent information directly from browsers that request content from their
 3 websites, as part of standard Internet communication protocols. User agent is included in ad
 4 requests Google receives and is then included in the corresponding bid requests sent to RTB
 5 participants, although Google sometimes reduces how much information is included in the user
 6 agent field in a bid request as an additional privacy measure, as discussed further below.

7 **Device Advertising ID**

8 29. A device advertising ID is a unique, per-device, user-resettable identifier, provided
 9 by mobile device operating systems, that allows publishers to track user activity for advertising
 10 purposes. On an iOS device, this identifier is the Identifier for Advertising ("IDFA"), and on an
 11 Android device, this is the Advertising ID ("AdId"). Where Google receives device advertising IDs
 12 in an ad request, it may include them in the corresponding bid requests sent to RTB participants,
 13 but there are various circumstances in which device advertising IDs are omitted, as discussed
 14 below. Further, users may reset the device advertising ID for their device at any time; when they
 15 do so, any subsequent bid requests involving that same device will have a different device
 16 advertising ID (if the ID is included at all in the bid request). In addition, both iOS and Android
 17 provide users with options to not share device advertising IDs.

18 **General location fields**

19 30. Bid requests may contain general location data, which is derived from the client IP
 20 address in the corresponding ad request. Location data in bid requests is not derived from other
 21 information like GPS coordinates detected by a mobile device or any information in a Google user's
 22 account.

23 31. In a bid request, the location information Google provides is shown in the
 24 combination of the "lat/lon" and "accuracy" fields. The lat/lon field does not indicate precise
 25 geolocation coordinates but rather a reference position, such as a midpoint, for the IP-derived
 26 location. The related accuracy field in bid requests is the radius of a circle with the approximate

1 area of the IP-derived location (measured in meters).⁹

2 32. To enhance privacy, the location information in bid requests is “coarsened” based
 3 on Google standards regarding the minimum size of the area and number of users observed in that
 4 area. This provides additional privacy-enhancing protections that go beyond the industry standard
 5 protocols for location data in OpenRTB.

6 **Child-Directed Treatment**

7 33. In addition, if Google receives an ad request for child-directed content, it does not
 8 send any bid requests to RTB participants.

9 **Verticals and User Lists Are No Longer Included**

10 34. RTB bid requests previously included a detected_vertical field, which contained the
 11 subject matter category (the “vertical”) of the website where the ad inventory was located. This
 12 [REDACTED] field has not been populated in bid requests since approximately February 2020
 13 and there are no other data fields in bid requests that contain information on the vertical(s) of the
 14 websites where the ad inventory is located.

15 35. Bid requests also previously contained a user_list field. As background, RTB
 16 participants can create user lists (for example, a list of cookie IDs for browsers that have visited a
 17 given web site) and provide them to Google. When a bid request to an RTB participant involved a
 18 user on one or more of the RTB participant’s user lists, the applicable list was noted in the user_list
 19 field. This field has not been populated in bid requests since 2020. We currently allow RTB
 20 participants to use uploaded user lists as a filter, to receive bid requests only for a subset of their
 21 users they are interested in.

22 36. Bid requests also previously contained an app_category_ids field. This field
 23 contained information on the subject matter category of the app where the ad inventory was located.
 24 The categories are publicly available information¹⁰, and are selected by app developers to

25
 26 ⁹ A bid request may also have information indicating the applicable country, region, metro, city and
 zip code.

27 ¹⁰ The categories for apps available in the Google Play Store are located here:
<https://support.google.com/googleplay/android-developer/answer/9859673?hl=en&zippy=%2Capps%2Cgames>. The categories for apps available in the Apple App Store are located here: <https://developer.apple.com/app-store/categories>.

1 categorize their apps in the Google Play store and in the Apple App Stores. This field has not been
 2 populated in bid requests since February 2020.

3 **Many Different Factors Affect What Data Is Included in RTB Bid Requests**

4 37. The foregoing data flow only applies to websites and apps that sell ad inventory
 5 through Google's SSPs. If a user visits a non-Google website or application that does not sell ad
 6 inventory through Google advertising products, Google advertising products will not receive any
 7 data relating to that visit, and no bid requests will be sent to RTB participants. Also, when javascript
 8 is disabled on a site, no ad requests are sent to Google and no corresponding bid requests are sent
 9 to RTB participants. Individuals can disable javascript through browser settings; for example, the
 10 Google Chrome browser has settings that allow users to disable javascript.

11 38. If Google receives an ad request from a website or app, the data shared in the
 12 corresponding bid requests will vary depending on many factors, including (1) features and settings
 13 enabled by the publisher, (2) settings enabled by a user in their Google Account, browsers, and
 14 devices, and (3) use of third-party software and tools.

15 39. Broadly speaking, these settings and controls will determine (1) whether ads shown
 16 through RTB are based only on "contextual" information like the content of the website where the
 17 ad is shown, without using pseudonymous identifiers, or (2) whether cookies or other
 18 pseudonymous identifiers can be included (where they are available) which enables RTB
 19 participants to select ads based on information they may have on prior activity associated with the
 20 identifier. Google generally refers to this latter category as a type of "personalized ads." To be
 21 clear, ads shown through RTB are *never* based on information read from a user's Google account
 22 and RTB bid requests *never* include such information.

23 **Publisher Actions and Publisher-Enabled Settings**

24 40. Google Ad Manager publishers can use privacy controls in Google Ad Manager that
 25 affect the data included in bid requests.

26 41. For example, a publisher can enable restricted data processing ("RDP") mode for
 27 some or all the traffic on its sites. In RDP mode currently, (1) bid requests will not include
 28 google_user_id, device advertising IDs, hosted_match_data, session_id, or IP address, (2) user

1 agent data is generalized, which means the browser sub-version values in the user agent string are
 2 replaced with zeros (for example, iOS 14.5 will be truncated to iOS 14.0), and (3) cookie matching
 3 is disabled. Where RDP applies, ads are based only on contextual information. Between
 4 approximately January 2020 and October 2021, RDP operated differently and resulted in bid
 5 requests being blocked entirely.

6 42. A publisher may opt to enable RDP mode for all their users who are in U.S. states
 7 with certain privacy laws, including California, and can implement this mode either for all traffic
 8 from those states or an a per-request basis for individual users who request RDP treatment on the
 9 website or app. A publisher can also enable RDP more broadly for all traffic on their sites,
 10 regardless of the user's location.

11 43. Where a publisher opts to implement RDP on a per-request basis, they can use
 12 certain tools in Ad Manager to present users with information about the publisher's advertising
 13 practices and allow users to consent or opt out. Where a user opts out in this process, that preference
 14 is conveyed to Google and bid requests for that user will be treated in the same manner as RDP
 15 mode above.

16 44. A publisher can also opt out of personalized ads altogether on their sites, in which
 17 case all bid requests for the publisher's sites will be treated in the same manner as RDP mode
 18 described above.

19 **Individual User Settings, Actions, and Tools**

20 45. Individual user actions also affect whether various information is included in bid
 21 requests, including through their use of (a) account settings in their Google Account; (b) controls
 22 and settings in their browsers and devices; (c) publisher-provided settings for personalized ads; and
 23 (d) third-party software and tools.

24 46. Because users have many options for controlling how their data is used in
 25 advertising, Google will sometimes receive different privacy treatment signals for the same user.
 26 Google's policy is to apply the most restrictive privacy treatment signal it receives. If Google
 27 advertising products receive a single signal from a user that they have opted out of personalized
 28 ads, regardless of what other signals indicate (even if they indicate the user is OK with personalized

1 ads), we disable personalized ads.

2 **47. Publisher provided opt-outs:** As noted above, a publisher may enable RDP mode
 3 by presenting users with an option to select RDP treatment. Where a user does so, any bid requests
 4 generated from their activity on the publisher's web site will be treated as described above for RDP
 5 mode.

6 **48. GAP setting for signed-in users:** Google Ad Personalization ("GAP") is a Google
 7 account setting, available to signed in Google users, that controls what types of ads a user is shown.
 8 Account holders can turn GAP off in various ways, including by visiting the Google Ad Settings
 9 page at adssettings.google.com and turning off "Ad personalization."

10 49. When Google determines that a signed in user is opted out of GAP, they are shown
 11 only non-personalized ads based on "contextual" information, as referenced above, and certain data
 12 in RTB bid requests is omitted or generalized, including all pseudonymous identifiers and hosted
 13 match data, and cookie matching is also disabled.

14 50. To be clear, whether a user is opted out of GAP or not, bid requests never contain
 15 personal information read from a user's Google account. This is true even when GAP is enabled.
 16 In this circumstance, RTB bid requests are associated only with pseudonymous identifiers, where
 17 available, and information associated with those identifiers are kept separate from Google signed
 18 in user data.

19 51. **Signed-out user settings:** A Google account holder who is signed-out from their
 20 account can still access the opt-out setting by clicking on the AdChoices icon in an ad that is
 21 displayed in their browser. If the ad was served by Google, clicking on that icon will take the user
 22 to <https://adssettings.google.com/whythisad>, which has a link to the <https://adssettings.google.com>
 23 page. Signed-out users can also navigate directly to adssettings.google.com.

24 52. Signed-out users can also opt out of advertising cookies by visiting the Network
 25 Advertising Initiative's ("NAI's") Opt-Out page. That page allows a user to select "Manage My
 26 Browser's Opt-Outs" to detect which NAI members, including Google, may engage in personalized
 27 advertising on the browser. If a user opts out of personalized advertising by Google on the NAI
 28 webpage, the user's browser will rewrite the Biscotti cookie to an "opt-out" value, preventing

1 Google from using the cookie value for personalized ads. Because the Biscotti cookie is set to an
 2 “opt-out” value, Google shows only non-personalized ads on that webpage and certain data in RTB
 3 bid requests is omitted or generalized, including all identifiers and hosted match data, and cookie
 4 matching is also disabled.

5 53. When a user has opted out of ads personalization through these various options,
 6 users will only receive non-personalized ads and the information in any RTB bid requests will be
 7 limited in the same manner as described above for signed-in users who opted out of GAP.

8 54. **Web browser settings:** Individuals also have access to settings in their web
 9 browsers that affect the data included in bid requests. For instance, all common web browsers
 10 include settings for users to (1) block some or all cookies, (2) delete existing cookies, or (3) use
 11 private browsing modes (e.g., “Incognito” in Chrome, “Private Browsing” in Safari).

12 55. **Blocking cookies:** When a user blocks some or all cookies, the browser prevents
 13 websites and Google from setting or receiving any cookies. If all cookies are blocked, the browser
 14 will not send any cookies to Google. When a user blocks some cookies, such as third-party cookies,
 15 the browser does not set or transmit to Google any third-party cookies, including advertising
 16 cookies (this includes Biscotti and the derived google_user_id). The Safari, Firefox, and Edge
 17 browsers all disable third-party cookies by default. When a user blocks cookies through these
 18 settings, the google_user_id will not be included in RTB bid requests, and cookie matching is not
 19 functional.

20 56. **Clearing cookies:** When a user enables this feature, cookies do not persist across
 21 browsing sessions and Google will not receive any cookies set in a prior session. Deleting cookies
 22 results in all data linked to cookies being discarded (as the data is no longer linked to a cookie and
 23 gets deleted). Also, the google_user_ids derived from a deleted Biscotti cookie are never sent again
 24 on a bid request, and thus any subsequent browsing activity can no longer be associated with those
 25 deleted identifiers.

26 57. **Private browsing modes:** Google Chrome’s private browsing mode is called
 27 Incognito mode. If Chrome is used in Incognito mode, Chrome creates new cookies for the duration
 28 of that Incognito session, and those cookies are deleted when that Incognito session ends. Because

1 Chrome creates a new set of cookies for that Incognito session, the Biscotti ID and any
 2 google_user_ids derived from that Biscotti ID, are unique to that specific Incognito session. They
 3 have no relation to, and are not joined with, any cookies or Biscotti ID set during other browsing
 4 sessions, including those set during a different Incognito session. Other web browsers, including
 5 Safari, Firefox, and Edge, offer private browsing modes that behave similarly to Chrome.

6 58. If a user returns to the same web pages they visited in a prior but separate private
 7 browsing session, new cookies containing a new Biscotti ID will be set. Because the google_user_id
 8 is derived from the Biscotti cookie, a user will have a different google_user_id for regular browsing
 9 and private browsing sessions. That google_user_id is unique to that specific private browsing
 10 session. And if that user returns to any of the same web pages that they visited in a prior but separate
 11 private browsing session, they will have a new google_user_id which is unique to that specific
 12 private browsing session.

13 59. Installing browser extensions: A user can also install ad-blocking extensions on their
 14 web browser that can be configured to block the browser from sending ad requests. Popular
 15 examples of those extensions are AdBlock and Adblock Plus.¹¹ When a user unchecks the “Allow
 16 Acceptable Ads” option in the extension’s settings, these ad-blocking extensions may, depending
 17 on their configuration, prevent the browser from sending ad requests to Google, which in turn
 18 prevents bid requests from being sent to RTB participants.¹²

19 60. The Interest-Based Ads Opt-out is another example of a browser extension users
 20 can install that affects bid requests.¹³ This browser extension for Google Chrome is available for
 21 download at the Chrome Web Store, which indicates that it has “500,000+ users.” When installed,
 22 this browser extension rewrites the Biscotti cookie to an “opt-out” value, preventing Google from
 23

24 ¹¹ AdBlock can be downloaded from the Chrome Web Store, available
 25 at <https://chrome.google.com/webstore/detail/adblock-%E2%80%94-best-ad-blocker/gighmmiobk1fepjocnamgkkbiglidom>. AdBlock Plus can be downloaded from the
 26 Chrome Web Store, available at <https://chrome.google.com/webstore/detail/adblock-plus-free-ad-block/cfhdojbkjhnlbpkdaibdcddilifddb>.

27 ¹² More information concerning AdBlock Plus’s “Acceptable Ads” allow list is available at
<https://adblockplus.org/en/acceptable-ads#optout>.

28 ¹³ The IBA Opt-out can be downloaded from the Chrome Web Store, available at
<https://chromec.google.com/webstore/detail/iba-opt-out-by-google/gbiekjoiiknlhijdjaadobpkdhmoebb>.

1 using the cookie value for personalized ads. Because the Biscotti cookie is set to an “opt-out” value,
 2 Google shows only non-personalized ads in that application and the google_user_id will not be
 3 included in RTB bid requests, and cookie matching is not functional.

4 61. Device-level settings: There are also various settings available to users on their
 5 mobile devices that impact the data sent in RTB bid requests. For example, if an iOS device user
 6 does not consent to App Tracking Transparency on their device when prompted by an application
 7 she visits, then ad requests from that app do not contain the IDFA. The App Tracking Transparency
 8 consent limits publishers to creating ad requests from only user information collected from their
 9 own applications and sites, and prevents cross-app tracking. iOS users can also turn off the setting
 10 for “Allow Apps to Request to Track,” which completely disables the App Tracking Transparency
 11 popup across all apps on the user’s device. When this setting is disabled, the user’s device
 12 automatically rejects App Tracking Transparency in every app which requests it. As a result, no ad
 13 requests from any app contains the device’s IDFA.

14 62. In addition an Android device user may reset the AdID for their device whenever
 15 they wish. When a user does so, this results in all data linked to that AdID being discarded. Any
 16 subsequent application activity can no longer be associated with that deleted identifier.

17 63. Android users also have the option to entirely delete the AdID on their device. If an
 18 Android user deletes the AdID from their device, then it is no longer provided to app developers
 19 and is instead returned as a string of zeros in an ad request. As a result, it is not included in any bid
 20 requests relating to that user’s device.

21 64. Using a VPN or proxy server: If a user or their network administrator employs a
 22 proxy server or VPN (Virtual Private Network) that masks the sending device’s IP address, then an
 23 ad request in that circumstance and the corresponding bid request would contain the IP address
 24 assigned by the VPN or proxy server, not the private IP address of the device itself (which in the
 25 case of the bid request, will be a truncated version of that IP address as noted above). Note, Apple
 26 is providing turn-key IP proxy servers on some of their products, which has the same effect).

27 65. Because location in bid requests is derived from IP address, the location information
 28 of a user using a VPN or proxy server will be derived from the IP address assigned by the VPN or

1 proxy server, which may be different from the user's actual location.

2 **Dr. Shafiq's Assertions are Inaccurate**

3 66. I understand that Plaintiffs' expert Dr. Shafiq contends that "Google maintains
 4 common processes and systems by which it can associate or link user data shared in Google RTB
 5 auctions with Google account holders, who are identified through their unique Google Account ID,
 6 or GAIA ID." Shafiq Report ¶ 96. Dr. Shafiq further states that there are "several ways in which
 7 Google can and does link the Biscotti ID to the GAIA ID or vice-versa" for this purpose. *Id.* ¶ 97
 8 (emphasis added).

9 67. As part of standard business practices, Google does not "link the Biscotti ID to the
 10 GAIA ID or vice-versa," including through the processes that Dr. Shafiq refers to in Section XIII
 11 of his report. Google does not link or join data keyed to GAIA IDs with data keyed to Biscotti IDs
 12 and maintains strict server-side segregation between these two types of data. Google ensures data
 13 associated with Biscotti identifiers is not linked to or used in combination with personally
 14 identifiable information. In the context of RTB, where a bid request involves a browser or device
 15 used by a Google account holder, Google maintains multiple internal systems, controls, and policies
 16 to prevent the data in bid requests from being linked to those individuals' Google accounts.

17 I declare under penalty of perjury of the laws of the United States that the foregoing is true
 18 and correct. Executed in New York, New York on September 29, 2023.
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